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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/729,138

12/05/2003

Matthew D. Hendel

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05/01/2006

EXAMINER

SHIN, CHRISTOPHER B

AMIN & TUROCY, LLP

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1900 EAST NINTH STREET

CLEVELAND, OH 44114

ART UNIT

PAPER NUMBER

2182

DATE MAILED: 05/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/729,138	Applicant(s) HENDEL ET AL.	
	Examiner Christopher B. Shin	Art Unit 2182	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>05272004</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 18, 24, 26-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- i. In claim 18, it is unclear as to how the “following equation to determined access time to the storage medium” is functionally and structurally inter-coupled with the “disk scheduling system” of claim 1 in terms of accomplishing the function of claim 1.
- ii. In claims 24, it is unclear as to how the how the “applying functionality associated with the following instructions” is functionally and structurally inter-coupled with the steps of claim 24 in terms of accomplishing the function of claim 20.
- iii. Claims 26 & 27 are improperly dependent claims.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

- a. The claimed invention is directed to non-statutory subject matter.

The limitations of claim 29 fails to and/or capable of producing useful, concrete or tangible result(s) when used in a computer system. The claimed data structure (first data field & second data field) do not have the capability to produce useful, concrete or tangible result(s) when used in a computer system.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 4, 5, 19-20, 25-27, 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Kamel et al. (6,078,998).

i. In figure 4 and the respective descriptive sections disclose all of the basic teachings of the claims 1, 5, 19-20, 25-27, 29 as follows:

Claims 1, 4, 5, 19-20, 25-27, 29

Kamel et al (6,078,998)

- A disk scheduling system
 - System of figure 4
- At least one queue to hold a subset of Input/Output requests directed to a storage medium
 - (90)
- A scheduling component that employs a predetermined number of the requests within a round to provide a particular latency level and maintain a particular throughput level in connection with storage medium updates
 - (92, 94)
- 4. at least one of a hard disk, floppy disk, memory stick, compact disk, and a memory that is schedule to be accessed
 - inherent feature of storage of media

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- 5. the scheduling component dynamically calculates a determined amount of bounded latency in order to perform I/O scheduling for selected tasks
 - (92,94)
- 19. a computer readable medium having computer readable instructions stored thereon for implementing the scheduling component and the queue of claim 1
 - inherent feature/function of the system of figure 4
- 20. a method to schedule requests to a storage medium
 - system/operation of figure 4
- determining a predetermined number of requests for a set of requests
 - feature of column 2, lines 38-42
- determining a latency parameter associated with the set of requests
 - feature of column 2, lines 39-40, without violating deadlines
- updating a storage medium based upon the latency parameter and a desired throughput for the set of requests
 - feature of column 2, lines 47-56
- 25 a method to perform disk updates
 - system/operation of figure 4
- automatically determining latency requirements for a round of requests
 - feature of "Deadline"
- automatically adjusting a size for the round of requests
 - feature of column 2, lines 38-42
- updating a storage media with the round of requests
 - feature of column 2, lines 47-56
- 26. determining bandwidth requirements for the round of requests
 - feature of column 2, lines 38-42
- automatically prioritizing the round of requests based upon the determined bandwidth requirements
 - feature of Priority of figure 4
- 27. comprising dynamically monitoring the bandwidth and the latency requirements
 - feature of serving requests in SCAN order without violating deadlines with maximizing net profit & minimizing the seek time, See also columns 5-6 lines 53-12 & columns 2, lines 34-56
- 29. computer readable medium having a data structure stored thereon
 - system /operation of figure 4
- a first data field related to a size parameter for a queue associated with a round of requests
 - figure 4, 94- a combination of (Priority, Deadline, ID, Location), 92
- a second data field related to a latency parameter associated with the round of requests

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- figure 4, 94- a combination of (Priority, Deadline, ID, Location), 92
- C-Look
 - Inherent function of the algorithm used in figure 4
- ii. Since the Kamel reference teaches all of the basic teachings of the limitations of the claims 1, 5, 19-20, 25-27, 29, the above claims are anticipated by the Kamel reference.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2-3, 6-17, 21-23 & 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamel et al. (6,078,998) as applied to claims 1, 5, 19-20, 25-27 & 29 above, and further in view of Wooten (5,621,898).

- a. The teachings of claims 1, 5, 19-20, 25-27 & 29 are similarly applied hereafter.
- b. As for claims 2-3 & 6-17, 28 further add limitations regarding plurality of categorized queues, not expressly taught by the Kamel reference; however, such limitations are one) very well-known at the time of the invention; two) very commonly practiced in the art; and finally, clearly evidenced by the Wooten reference. As can be seen from the Wooten reference, in figures 4-5 & the

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respective descriptive sections, it teaches multiple categorized queues for efficient handling of periodic and aperiodic data. More importantly, Kamel and Wooten references are closely related/analogous art with each other and they both recognizes the benefits of using a single or multiple queues (Kamel-columns 2, lines 34-35 & Wooten-column 7, lines 12-end). Therefore, one skilled in the art can easily motivated to see the benefits of utilizing the combined benefits of Kamel & Wooten; therefore, to combine the both teachings to come up with the claimed invention.

c. As for claims 21-23, the above teachings of claim 20 are similarly applied.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher B. Shin whose telephone number is 571-272-4159. The examiner can normally be reached on 6:30-5:00 M,Tu,Th,F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fritz Fleming can be reached on 571-272-4145. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

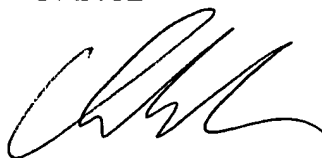
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Christopher Shin
Primary Examiner
Of 2182

April 27, 2006
cbs

A handwritten signature in black ink, appearing to be 'C. Shin', written in a cursive style.